

REMARKS

Claims 1, 3-6, and 8-20 remain pending, of which claims 1, 3-6, and 8 are presented for current examination, and claims 9-20 are withdrawn from consideration as drawn to a nonelected invention.

Regarding the Final Office Action:

In the Final Office Action,¹ the Examiner took the following actions:

- (a) rejected claims 1, 3, 5, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara (U.S. Patent No. 6,271,594) ("Matsubara") in view of Tanaka et al. (U.S. Patent No. 6,333,547) ("Tanaka");
- (b) rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka and further in view of Konuma et al. (U.S. Patent No. 6,049,092) ("Konuma"); and
- (c) rejected claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka and further in view of Park (U.S. Patent No. 5,795,808) ("Park").

Applicant traverses the rejections for the following reasons.

Rejection of Claims 1, 3, 5, and 8 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claims 1, 3, 5, and 8 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka. A *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make

¹ The Office Action contains statements characterizing the related art and the claims. Regardless of whether any such statements are specifically identified herein, Applicant declines to automatically subscribe to any statements in the Office Action.

the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). M.P.E.P. § 2142, 8th Ed., Rev. 3 (August 2005), p. 2100-134.

A *prima facie* case of obviousness has not been established for at least the reason that neither Matsubara nor Tanaka, taken alone or in combination, teaches or suggests every feature of Applicant's claims.

Applicant incorporates by reference the arguments presented in the Amendment filed on December 20, 2005, showing that Matsubara and Tanaka, both alone and in combination, fail to teach or suggest every element of independent claim 1. Applicant already established that Matsubara does not disclose at least Applicant's claimed "insulating film provided on the semiconductor substrate so as to be in contact with at least the conductive layer, wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less," as recited in claim 1. Applicant also established that Tanaka does not overcome Matsubara's deficiencies. Furthermore, Applicant notes that the Examiner did not respond to the substance of the arguments presented in the 12/20/2005 Amendment. As stated in M.P.E.P. § 706.07, "where a single previous Office action contains a complete statement of a ground of rejection, the final rejection may refer to such a statement and also *should include a rebuttal of any arguments raised in the applicant's reply*" (emphasis added). Additionally, M.P.E.P. § 707.07(f) states: "[w]here the applicant traverses any rejection, *the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it*" (emphasis added). In the present case, the Examiner does not address the major lines of reasoning that exposed the deficiencies of the cited references. Therefore,

Applicant respectfully requests that the Examiner address all of Applicant's arguments in the next Office Action if any of the claims still stand rejected.

Moreover, Matsubara additionally fails to disclose the claimed "interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film," as recited in claim 1. Indeed, although the Office Action alleges that "Matsubara discloses...an interlayer insulating film provided on the semiconductor substrate," the Office Action does not cite which element in Matsubara's disclosure allegedly teaches this claim element. On the other hand, the Examiner admitted that Matsubara fails to disclose an insulating film containing carbon, silicon nitride and chlorine. Office Action at page 3. Therefore, Matsubara necessarily fails to teach the claimed "insulating film...wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less," as recited in claim 1. Since Matsubara fails to teach the claimed "insulating film," Matsubara cannot teach or suggest the claimed "interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film." Although Matsubara discloses a silicon oxide film 109 and a diamond-like carbon film 113 as interlayer insulating films in Fig. 4, Matsubara's silicon oxide film and carbon film do not cover an insulating film that "contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less," as recited in claim 1.

Tanaka again fails to overcome Matsubara's deficiencies regarding the claimed "interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film," as recited in claim 1. The Examiner has apparently applied Tanaka to

teach “an insulating film containing carbon, silicon nitride and chlorine (Fig. 25B; 411; Co. 28, Ins 29-39).” However, Applicant already established that Tanaka’s silicon nitride film 411 cannot correspond to the claimed “insulating film” of claim 1, since Tanaka’s film is a *cap insulating film*, which is used as a *mask* in an etching step. Tanaka, Col. 27, lines 65, Col. 29, lines 13-17. Furthermore, even assuming, for the sake of the argument, that Tanaka’s cap film 411 corresponds to the claimed “insulating film” as recited in claim 1, Tanaka fails to cure Matsubara’s shortcomings in that it also fails to disclose the claimed “interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film,” as recited in claim 1. That is, there is no teaching of an interlayer insulating film to cover the cap insulating film 411 of Tanaka.

Therefore, a *prima facie* obviousness has not been established, for at least the reasons set forth above. Specifically, neither Matsubara nor Tanaka, taken alone or in combination, teaches or suggests every feature recited in Applicant’s claim 1 and required by dependent claims 3, 5, and 8. Claim 1, 3, 5, and 8 are therefore allowable over the combination of Matsubara and Tanaka. Claims 3, 5, and 8 are also allowable due to their dependence from allowable base claim 1.

Rejection of Claim 4 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka, and further in view of Konuma.

A *prima facie* case of obviousness has not been established for at least the reason that neither Matsubara, Tanaka, nor Konuma, taken alone or in combination, teaches or suggests every feature of Applicant’s claims. Specifically, Matsubara,

Tanaka, and Konuma, taken alone or in combination, do not teach or suggest each and every element of Applicant's independent claim 1, from which claim 4 depends.

Applicant has already demonstrated previously herein that Matsubara and Tanaka do not teach or suggest all the elements of independent claim 1. Konuma does not overcome the above-noted deficiencies of Matsubara and Tanaka. That is, Konuma also fails to teach or suggest at least the claimed "insulating film provided on the semiconductor substrate so as to be in contact with at least the conductive layer, wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of $4 \times 10^{21} \text{ cm}^{-3}$ or less," as well as "interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film," recited in claim 1, from which claim 4 depends.

Thus, even if Konuma were combined with Matsubara and Tanaka as the Examiner suggests, the cited references, each alone or in combination, fail to teach or suggest every element recited in independent claim 1 and required by claim 4, and no *prima facie* case of obviousness has been established. Dependent claim 4 is also allowable at least due to its dependence from allowable base claim 1. Accordingly, the Examiner's rejection of claim 4 under 35 U.S.C. § 103(a) should be withdrawn.

Rejection of Claim 6 under 35 U.S.C. § 103(a):

Applicant traverses the rejection of claim 6 under 35 U.S.C. § 103(a) as being unpatentable over Matsubara in view of Tanaka and further in view of Park. Applicant respectfully disagrees with the Examiner's arguments and conclusions.

A *prima facie* case of obviousness has not been established because neither Matsubara, Tanaka, nor Park, taken alone or in combination, teaches or suggests every feature of Applicant's claims. Specifically, Matsubara, Tanaka, and Park, taken alone or in combination, do not teach or suggest each and every element of Applicant's independent claim 1, from which claim 6 depends.

Applicant has already demonstrated previously herein that Matsubara and Tanaka do not teach or suggest all the elements of independent claim 1. Park does not overcome the above-noted deficiencies of Matsubara and Tanaka. That is, Park also fails to teach or suggest at least the claimed "insulating film provided on the semiconductor substrate so as to be in contact with at least the conductive layer, wherein the insulating film contains carbon and is mainly composed of a silicon nitride film, and further contains chlorine at a concentration of 4×10^{21} cm⁻³ or less," as well as "interlayer insulating film provided on the semiconductor substrate so as to cover the insulating film," recited in claim 1, from which claim 6 depends.

Thus, even if Park were combined with Matsubara and Tanaka as the Examiner suggests, the cited references, each taken alone or in combination, fail to teach or suggest every element recited in independent claim 1 and required by claim 6, and no *prima facie* case of obviousness has been established. In addition, dependent claim 6 is allowable at least due to its dependence from allowable base claim 1. Accordingly, the Examiner's rejection of claim 6 under 35 U.S.C. § 103(a) should be withdrawn.

Conclusion:

In view of the foregoing, Applicant requests reconsideration of the application and withdrawal of the rejections. Pending claims 1, 3-6, and 8 are in condition for allowance. Accordingly, Applicant requests a favorable action.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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By: 
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